

### ABSTRACT

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Disclosed is a dehumidification unit which comprises alternate laminations of an adsorption element (1) provided with a plurality of first air ventilation passages (3) and a cooling element (2) provided with a plurality of second air ventilation passages (4). In the dehumidification unit, the cooling element (2) is provided, at a planewise inner area thereof, with an opening (24), thereby being shaped like a frame. Cooling air (Ab) is passed through the opening (24). With such configuration, the length of the second air ventilation passages (4) becomes shorter by an amount corresponding to the formation of the opening (24). Consequently, the pressure loss of the cooling air (Ab) is reduced and its flow rate increases accordingly. In addition, at the opening's (24) area, the cooling air (Ab) is brought into direct contact with the adsorption element's (1) side, and the efficiency of heat transfer therebetween is improved. Hereby, as a synergistic effect of the increased flow rate of the cooling air (Ab) and the improved heat transfer efficiency, the heat-liberation action of heat of adsorption is accelerated and the dehumidification capability of the dehumidification unit is maintained at high levels over a long period of time.